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ABSTRACT

This report constitutes a recommendation to the Director of the Memphis State University (MSU) Library that end user searching be made a permanent part of the existing information retrieval service. The recommendation is based in part on the results of a 1984 study sponsored by the university that assessed the attitudes of students and faculty toward the end user system, BRS/After Dark, and the ease with which they could use it. The report is divided into three sections: the first includes background information on the information retrieval services in the MSU libraries, end user search services, MSU libraries and automation, and the university microcomputer policy; the second section, "Proposed End User Service in the MSU Library," details information on users, costs, staffing and service hours, equipment, and specifications for two alternatives: a full-scale service or a minimum service; and the final section presents the authors' recommendations. Appendices include a bibliography on end user searching, a BRS/After Dark brochure, an abstract of the end user study, a list of institutions using BRS/After Dark, and budget proposals for both the full-scale service and the minimum service. (THC)

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Memorandum

To: John Evans
Head, Reference/Microforms Department

From: Betsy Park BP
Sharon Mader SM

Subject: Recommendation to Continue the BRS/After Dark End User Search Service

Date: August 24, 1984

We have now completed our grant-supported study of the BRS/After Dark end user search service. Faculty and student participants found the system both easy to use and beneficial for their research.

Attached for your consideration is a report on the findings and implications of this study. As you will note, we recommend that this end user service be continued, based on the success of the research study.

IR 509953

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PURPOSE

The purpose of this report is to recommend to the Library Administration that funding and procedures be approved so that the BRS/After Dark end user search service can be added to the existing Information Retrieval Service.

A recently completed study of BRS/After Dark, sponsored by a grant from the Information Technology Research Institute Project, indicates 1) that faculty and graduate students can successfully search this end user system, and 2) that they would actively use the system.

Memphis State University Libraries is gaining recognition as a leader in library automation. The grant-sponsored research has attracted attention both locally and nationally. The current implementation of the automated circulation/catalog system provides broader use of computer technology in the MSU Libraries. The addition of BRS/After Dark is therefore not only the next logical step in the overall library automation plan, but an opportunity to offer complementary end user systems.

The grant funds which have supported the BRS/After Dark project will end September 30, 1984. Therefore, a request is made that the Library continue to support the service after this date. The proposed additional service would operate on a cost-recovery basis, as does the regular information retrieval service. By continuing this service, the Library would avoid paying again the $75.00 sign-up fee for each password and would capitalize on the momentum created by the study.

The following proposal details the specifications for two alternatives: a full-scale service or a minimum service. Service at either level would provide access to BRS/After Dark during specified evening and weekend hours. Full-scale service, 20 hours per week and a microcomputer, would be preferable. However, service at a minimum level of 10 hours per week using existing terminals, would also be possible. Service at either level would allow library patrons to perform searches on the end user system.

"The computer, especially the microcomputer, is an informational technology tool and it is the responsibility of libraries to provide information. Terminals or microcomputers acting as terminals provide ease of access and decentralized access to an increasing variety of networks or information...In addition, the microcomputer has the added ability to download information and data from such information sources, allowing a user to store, edit, and analyze it easily. Given the proliferation of commercial and academic databases, the library can become more active in linking users to data and thereby further enhance its historic role as the primary purveyor of information in the university."[1]

BACKGROUND

The Information Retrieval Service in the MSU Libraries

The use of a computer to perform bibliographic searches began at Memphis State University Libraries in 1971 when patrons were able to request literature searches on ERIC, Chemical Abstracts, and Index Medicus. The searches were performed in a batch mode, with punched cards, the results being mailed from the remote site.

In 1977, direct online searching was offered through the Lockheed DIALOG service, and MSU's Information Retrieval Service began. Additional databases were made available through affiliation with Bibliographic Retrieval Service (BRS) in 1980. In 1971 the library had 21 search requests; in 1983-84, 1,355 searches were performed. The number of databases available for searching has also increased dramatically, from 3 to over 200 today. As the Information Retrieval Service has grown, so has the time commitment -- from .75 FTE in 1980 to 1.75 FTE in 1983-84.

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[1]Alan E. Guskin, Carla J. Stoffle, and Barbara E. Baruth, "Library Future Shock: The Microcomputer Revolution and the New Role of the Library," College & Research Libraries 45 (May 1984) : 180.

Thus, online information retrieval has played an increasingly important role in the library's reference service. The Information Retrieval Service relies heavily upon an information specialist or search intermediary to perform the actual search. This search intermediary has been an essential element because of the complexity of performing online searches and the possibility of incurring high expenses.

End User Search Services: Definition

The recent introduction of two new services (DIALOG's Knowledge Index and BRS/After Dark) will dramatically change the information retrieval habits of many library users. These services are aimed at the individual who has access to a microcomputer, whether at home, in the office, or at the library. This individual -- the "end user" of the information -- will directly use online resources, just as he now uses books, periodicals, and other information materials. (See Bibliography, Appendix A.)

These services are designed to require very little, if any, training, and cost considerably less than the regular full-scale services. On BRS/After Dark, for example, the cost varies from $6 to $22 per hour as compared to $18 to $93 per hour on the larger BRS system. (See Description, Appendix B.)

INTRI Grant

In January, 1984, Sharon Mader and Betsy Park received a grant from the Information Technology Research Institute Project at Memphis State University to study an end user system. The purpose of the study was to examine an end user search system to: 1) identify possible problems and solutions associated with the newly emerging end user search services; 2) assess the effects of instruction on the search process; and 3) evaluate the user's attitude toward, and demand for, these end user search services.

BRS/After Dark was chosen for the study because the existing Information Retrieval Service relies primarily upon BRS. The search system is familiar and the payment methods would be the same.

Description of the Study

For the INTRI study, interested participants were solicited from Memphis State University faculty and graduate students. A stratified sampling procedure was used to select a group of 56 participants, who were matched for status (faculty/graduate student) and computer experience (high/low). Participants were divided into two groups. Each participant had two sessions for searching BRS/After Dark. During Session I, each participant searched an assigned topic, with the remaining time free to search topics of choice. Group A then attended an instruction session. Session II was analogous to Session I. Following the search sessions, participants completed an attitudinal questionnaire with Likert-like questions.

Findings of the Study

Data were collected on search performance and from the attitudinal questionnaire. Preliminary analysis of the search performance indicated a statistically significant effect ($p=.05$) for the variable "time", with participants' performance improving over time. The underlying effect of different variables will be studied further, using factor analysis.

The questionnaire results showed an overwhelmingly positive response to end user searching. The data indicated that 100% of the participants would use BRS/After Dark in the library. When questioned about where they would prefer to use such a service, 44% indicated the library as the place of preference over the home (27%) or office (29%).

This study has provided valuable insights into end user search services and the potential for this service in an academic library. (See abstract, Appendix C.)

Dissemination of Results

End user activities at MSU Libraries have already begun to attract attention. Presentation of the findings of the study at the American Library Association's annual convention in Dallas (June, 1984), as well as other publicity, has stimulated numerous requests for further information and for publication of the results. Also in Dallas, the study was the focus for one of the thirteen table discussions at the joint program of ACRL's Computer Concerns Committee and the College

Libraries Section, "Putting College Libraries Online". In November, 1984, results and implications of the study will be presented at the College and University Libraries Section of the Tennessee Library Association meeting.

Requests for publication have been received from Library HiTech, Reference Services Review, Technicalities, and the Journal of Educational Media and Library Science. The library study is highlighted in the INTRI Project brochure, as well as in a Mid-South Business Journal article (May 7-11, 1984, p.6) on INTRI activities, thus generating interest in the Memphis community concerning end user services in the library.

From these contacts and from a review of the literature on end user searching, it is evident that while many libraries are thinking about starting such a service, very few have actually done so to date. (See Appendix D.) Memphis State University Libraries, with the advantage of a headstart, needs to maintain its momentum.

MSU Libraries and Automation

An end user search service would be consistent with the MSU Libraries' overall plan for automation. End user access would complement the existing intermediary search service, as well as the new CLSI online catalog/circulation system, which will be operational in the near future. With the CLSI system, the patron will perform his own search of the libraries' holdings. In a similar manner, an end user bibliographic system would allow the patron to perform a search in remote online databases. As library patrons become more computer literate, they will expect to have access to such online resources.

The automation activities of MSU Libraries are receiving publicity around the country. They are described in the widely distributed "Automation and Information Access" publication edited by John Evans and Ann Viles. The national image of MSU Libraries as a leader in full-scale automation would be greatly enhanced by the inclusion of end user services.

University Microcomputer Policy

With the new Memphis State University microcomputer policy, faculty and departments can purchase Apple and Zenith microcomputers at a

discount. This will certainly increase the number of microcomputer users on campus, with a corresponding increase in the demand for end user services and consultation. The Reference Department has already received inquiries about the availability of such services.

PROPOSED END USER SERVICE IN THE MSU LIBRARY

Users

The new service would provide users direct access to the BRS/After Dark search service. Users would include undergraduate and graduate students, faculty, and others in the Memphis State University Libraries community.

The service would be an adjunct to the existing Information Retrieval Service (IRS) -- increasing the scope and flexibility of online information retrieval at MSU. A user would have alternatives to satisfy his information needs: 1) to request that a search be performed by an information specialist or 2) to do his own search through the end user system. The user could consult with a professional in determining the best approach to take.

Costs

It is proposed that the MSU Libraries continue the BRS/After Dark service after the INTRI grant funds terminate on September 30, 1984. Two passwords for BRS/After Dark were purchased with the grant funds. It would be most advantageous if the account for the service could be transferred to the library on October 1, 1984, thus avoiding a second payment of the sign-up fee ($75.00 per password). BRS also requires a monthly minimum usage of $12.00 per password. This is equivalent to two hours of online time for each password. The projected usage will exceed that minimum, with the costs being paid by the users. However, the guarantee is still needed for the $24.00 monthly charge.

The service would be operated on a cost-recovery basis, as is the existing IRS service. At this time, BRS does not include a cost and connect time statement at the end of each database session, making it difficult for an institution to accurately calculate the user costs until a bill is received from BRS near the middle of the following month.

Thus, there are two alternatives for charging: 1) bill the patron after the library has received the bill from BRS, two weeks to a month later; 2) charge the patron immediately on a flat rate basis. Statistics from the INTRI study indicate an average hourly cost of about $11.00. Because of the difficulties inherent in a billing system, the second method is preferred.

Staffing and Service Hours

The proposed end user service would provide self-service access to BRS/After Dark during specified evening and weekend hours. A student worker would be available to monitor any technical problems which arose during a search, to change paper, and to refer end users to professional consultation, available by appointment during the day. The student worker is already in the Reference Department and would combine other duties with monitoring the service. The service could be administered within the regular IRS service, with a professional librarian who will work with the IRS librarian.

Equipment

While existing Texas Instruments data terminals (one 300 baud and one 1200 baud) could be used, a microcomputer and smart modem would provide additional technological and cost-saving advantages such as automatic log-on procedures; downloading and reformatting of search results; adding local holdings information; merging of files to eliminate duplicates; delivering output electronically; producing bibliographies; storing search strategies and SDI profiles; instructing users; and recording statistics.

Specifications for the Proposed Service

The proposed service could be implemented as a full-scale service or as a minimum service. Both plans are detailed.

FULL-SCALE SERVICE

Personnel

Professional librarian, whose duties would include:

1. Setting up payment procedures
2. Coordinating the service with the existing IRS service
3. Arranging for search consultation with users
4. Publicizing the service to MSU Libraries' community
5. Arranging for instruction/tutorials when applicable
6. Other duties as necessary

Student worker, whose duties would include:

1. Work 20 hours per week
2. Activate the system as needed by users
3. Change paper in the terminal printer
4. Act as trouble-shooter for common problems
5. Refer user to professional consultation, available during the day
6. Record databases and time used for each user on logsheet
7. Work on other Reference Room assignments, such as filing looseleaf services

Service Hours

The service would be available twenty hours a week:

Monday - Thursday, 6:00 p.m. to 9:00 p.m.

Saturday, 9:00 a.m. to 12:00 noon, 1:00 p.m. to 6:00 p.m.

Equipment

1. Dedicated telephone line
2. Microcomputer
   64 K, two disk drives, serial card
3. Monitor
4. Printer
   High quality dot matrix, 300/1200 switchable
5. Modem
   300/1200 switchable
6. Communications software

The equipment necessary for this service would be compatible with the requirements of the university microcomputer policy. For a cost estimate, see Appendix F.

MINIMUM SERVICE

Personnel

Professional librarian

Duties and hours the same as full-scale service

Student worker

Ten hours per week; duties the same

Service Hours

The service would be available ten hours a week:

Monday and Thursday, 6:00 p.m. to 9:00 p.m.

Saturday, 10:00 a.m. to 2:00 p.m.

Equipment

1. Existing telephone line
2. Existing data terminals

For a cost estimate, see Appendix G

RECOMMENDATIONS

It is highly recommended that end user searching be added to the existing Information Retrieval Service of the Memphis State University Libraries. This service should be funded for a full-scale level of service, using microcomputers.

This service would be beneficial to the Library and its users for the following reasons:

1. The Library's New Role

The library needs to take a leading role in the information society by establishing itself as a provider of online information sources and as a consultant and training resource for users who wish to access such sources, thus providing an alternative to computer stores and consultants.

It is important that the library provide access to available information. Increasingly, some information will be available only online. Users without microcomputers will not otherwise have access to online resources.

2. The Library's Automation Plan

Providing direct patron access to online information services is compatible with the overall library plan for automation. As patrons become more familiar with online resources, they will want to use them in the library.

3. The Increasing Demand for Services

Requests for computer literature searches by librarian intermediaries have continued to increase. The growing availability of personal computers and awareness of online information services will create a new demand for direct access to online resources.

With more end users performing their own routine computer searches, the librarian searchers can devote more of their time to assisting with more complex requests, developing instructional materials, and using online to its fullest potential to provide better service for all.

4. The Cost-Benefit Ratio

End user searching can be incorporated into the existing Information Retrieval Service with a minimum of cost and change. With the

proposed full-scale service, the cost of the microcomputer and the peripheral equipment will be offset by time savings and technological capabilities. But even with the minimum service, users will enjoy access to a new world of information.

END USER SEARCHING

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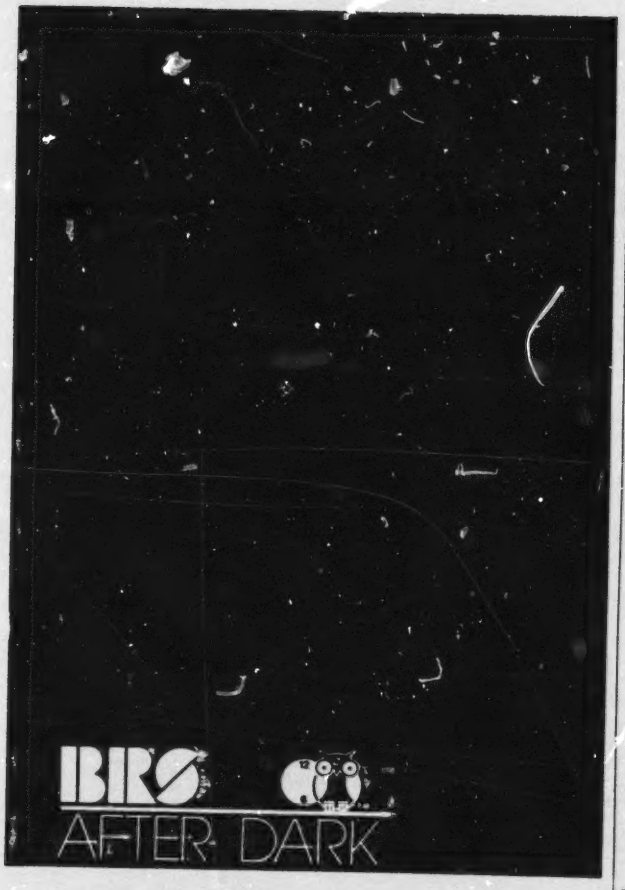

Your Own University Library Online At Home

Now there is an inexpensive and convenient way to research literally millions of journals, reports, books and articles pertaining to your particular areas of interest. It's BRS/AFTER DARK, the new home computer service that gives you evening access to one of the world's fastest and most powerful online information services, at a fraction of the cost during the business day.

A World Of Information

BRS/AFTER DARK provides in-depth coverage of such subjects as business and finance, education, energy, the environment, news, patent information, medicine, psychology, science and technology, social sciences and the humanities. Whatever your field, BRS/AFTER DARK is the ideal way to keep current with the latest developments.

A System Anyone Can Use

You don't have to be a computer expert to use BRS/AFTER DARK. The interactive language is simple, understandable and easily mastered with just a few minutes' practice. All you need is a telephone and any terminal and phone coupler.

BRS/AFTER DARK is the straightforward, logical choice for business people, educators, attorneys, physicians, writers, students — anyone with a need for up-to-date, comprehensive summaries of the most recent information in virtually any field.

Valuable Peripheral Services

In addition to comprehensive information searching, BRS/AFTER DARK offers numerous other services of particular interest to the personal computer owner. These include instant online communications anywhere in the country via electronic mail; plus, an informative Newsletter to keep you abreast of rapidly changing data processing and software developments and their impact on home computers. Shop-at-home programs, instant software delivery and other services are also planned for the near future.

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A World-Recognized Company

An innovator and leader in the online information industry, BRS was established in 1976 to bring a cost-effective search service to libraries. Today, BRS/SEARCH is the system of choice for major corporations and university libraries throughout the world. And now, BRS/AFTER DARK gives you the same powerful search capabilities—at greatly reduced rates—between the hours of 6 PM and midnight, your local time. BRS/AFTER DARK is a unique service you won't find anywhere else. It's the newest product of BRS, a company that has earned its excellent reputation by constantly expanding its resources to answer specific customer needs.

Sign On Now

It's just as easy to become a BRS/AFTER DARK subscriber as it is to use the service. Simply fill out and return the attached postcard. You'll be charged a one-time subscription fee of $50, which covers the search service as well as the BRS Newsletter, electronic mail and other services.

You will receive a comprehensive, easy-to-follow User's Manual which will be updated as new databases and services become available, together with your personal BRS/AFTER DARK Passcard and exclusive subscriber's number. You'll create your private Security Password, known only to you. Then any evening between the hours of 6 PM and midnight, you'll be able to summon up a wealth of information for as little as $6 per hour, including telecommunications charges.

Your subscription fee as well as all usage charges will be billed automatically to your MASTERCARD or VISA account, with a minimum charge of $12 per month. And, BRS/AFTER DARK will mail you monthly statements documenting usage and charges.

Don't let another evening go by without BRS/AFTER DARK. Mail the attached postcard right now.

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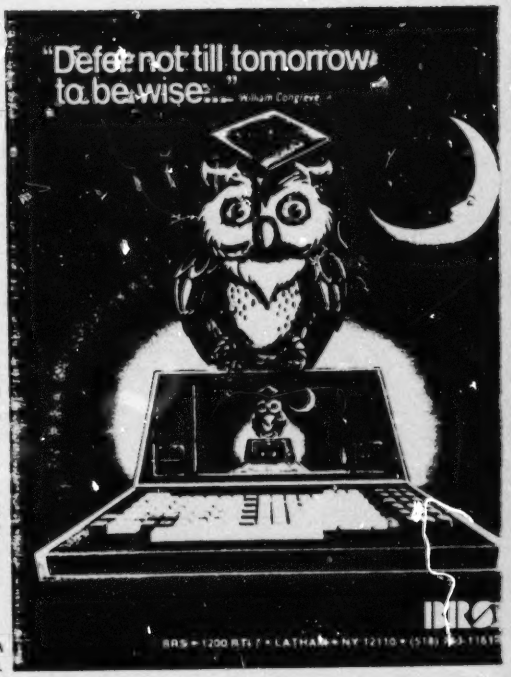
Order A Colorful Wise Owl Poster

"Defer not till tomorrow to be wise" quotes the computer-age sage on this striking full-color poster. Suitable for framing, it would make an ideal gift for any computer buff (including yourself)—and a sure-fire hit with the younger set.

Commissioned by BRS, the original owl-and-computer painting is the work of Daniel "Barkos" McGowan, an illustrator and designer with a growing reputation in both the United States and Europe, where he has won numerous prestigious awards.

This exclusive Wise Owl poster is available only from BRS/AFTER DARK. Order one Wise Owl or a whole flock by returning the attached card—but hurry, the supply is limited.



To protect your MASTERCARD/VISA account number, fold here and staple.

BRS AFTER DARK

( ) Sign me up as a BRS/AFTER DARK subscriber for a one-time subscription fee of $50. (Basic user's rate as low as $6/hour.) I understand that all fees will be automatically charged to my credit card account (below) with a minimum monthly charge of $12, not including royalties, and that BRS/AFTER DARK will mail me monthly statements documenting usage and charges.

( ) Send me _____ Wise Owl poster(s) @ $3.95 each.

Charge to MASTERCARD/VISA (circle one)
Acct. No. _____ Expires _____

SIGNATURE _____

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

(STAPLE HERE)

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BRS/AFTER DARK...

Easy To Access, Inexpensive To Use

System describes selected database.

System asks for your first inquiry (S1): answers with the number of items found (A1).

System requests your instruction.

1st item: Author
Title
Source

Descriptors (alternate search terms)

Abstract

System requests your instruction.

Below is a typical search of a database as it would appear on your terminal. The various codes are explained in the marginal notes.

TYPE IN LABEL FOR DATABASE DESIRED_: mgmt

You select desired database.

THE BRS/MANAGEMENT CONTENTS DATABASE CONTAINS INFORMATION ON BUSINESS, MANAGEMENT, ECONOMICS, FINANCE, ACCOUNTING, LAW, INDUSTRY AND MARKETING FROM BOOKS, PERIODICALS AND REPORTS AS WELL AS FILMS, SLIDES AND GENERAL NON-PRINT MEDIA. PRODUCED BY MANAGEMENT CONTENTS, INC., IT IS UPDATED MONTHLY AND IS A WELL-KNOWN AND COMPREHENSIVE COLLECTION OF INFORMATION FROM THE U.S., CANADA AND GREAT BRITAIN DATING FROM 1974.

TYPE IN SEARCH TERMS
S1 cash management accounts
A1 6 ITEMS FOUND

You enter desired search terms.

TYPE S TO CONTINUE SEARCHING, P TO PRINT ITEMS FOUND, M TO RETURN TO DATABASE MENU, OR O TO SIGN OFF_: p

You ask to print first item.

#1 AU Loomis, C.J.
TI The Fight For Financial Turf.
SO Fortune. Vol. 104, No. 13, Dec. 28, 1981, P. 54, 62+.
DE Banks-and-Banking. Legislation. Financial-Institution. Government-Regulation. Cash-Management.
AB The financial world is in a state of unpredictable flux, as evidenced by a flurry of legislation aimed at regulating and deregulating the industry. Banking companies, brokerage firms and even formerly nonfinancial institutions are attempting to define their roles in the competitive action by buying up and invading the securities brokerage business. The brokerage business is seen as a particularly attractive pull as it suits the needs of many consumer savers. What has surfaced from all the transactions is a new savings hybrid — the Cash Management Account (CMA) — a system which offers tremendous customer appeal by allowing savings, check writing and loan opportunities from a single source. Many businesses jumped into marketing the CMA quickly, and are now lamenting their early action as the system is proving to be a consumer-attractive but institution-unprofitable albatross. It is clear that the balance between CMAs and money market fund opportunities is revolutionizing the financial world and dragging nonfinancial institutions quickly into the revolution.

END OF ITEM. HIT ENTER KEY TO SEE NEXT ITEM, S TO CONTINUE SEARCHING, M TO RETURN TO DATABASE MENU, OR O TO SIGN OFF_: s

You decide to continue searching.

TYPE IN SEARCH TERMS
S2 1 and merrill lynch
A2 5 ITEMS FOUND

You ask to combine the Cash Management Account search (S1) with a Merrill Lynch search (S2) to retrieve articles about both.

TYPE S TO CONTINUE SEARCHING, P TO PRINT ITEMS FOUND, M TO RETURN TO DATABASE MENU, OR O TO SIGN OFF_: p

#1 AU Anon.
TI All They Want Is All Your Money.
SO Business Week, No. 2720, Dec. 28, 1981, P. 148-149.
DE Cash-Management. Investment. Banks-and-Banking. Brokerage.
AB Cash Management Accounts are proving to be popular with an increasing number of investors. In 1977, Merrill, Lynch, Pierce, Fenner & Smith Inc. originated the idea of a centralized asset account in which a computer moves cash around from checking account to money market mutual fund to brokerage at the investor's will. Bankers and VISA and MASTERCARD are planning similar accounts.

END OF ITEM. HIT ENTER KEY TO SEE NEXT ITEM, S TO CONTINUE SEARCHING, M TO RETURN TO DATABASE MENU, OR O TO SIGN OFF_ o

You sign off.

BRS AFTER DARK

BRS • 1200 RT. 7 • LATHAM • NY 12110 • (518) 783-1161

Appendix C

END USERS : ATTITUDES AND PERFORMANCE

Sharon Mader and Betsy Park
Memphis State University Libraries
Reference Department
Memphis, TN 38152

Since the 1970's a growing number of academic libraries have provided online bibliographic retrieval services. In a majority of these libraries, access to the online databases is through an intermediary or information specialist. An intermediary is required because of complex search protocol and the lack of a truly user-friendly system. Recently, however, online information retrieval systems have been developed and marketed which facilitate self-mediated, or end user, searching. These systems are less complex and less expensive than the regular online systems. There is a need for librarians and information specialists to study these new services in a controlled environment so that implications can be drawn as to their possible use.

The purpose of the study was to examine an end user search system to:

1) identify possible problems and solutions associated with the newly emerging end user search services;
2) assess the effects of instruction on the search process;
3) evaluate the user's attitude toward, and demand for, these end user search services.

Interested participants were solicited from Memphis State University faculty and graduate students. A stratified sampling procedure was used to select a group of 56 participants. Participants were matched for status (faculty/graduate student) and computer experience (high/low). Participants were divided into two groups. Each participant had two sessions in which to search BRS/After Dark. During Session I each participant searched an assigned topic with the remaining time free to search topics of choice. Group A then attended an instruction session. Session II was analogous to Session I. Following the search sessions, participants completed an attitudinal questionnaire with Likert-like questions.

Data were collected on search performance and from the attitudinal questionnaire. Preliminary analysis of the search performance indicates a statistically significant effect at the .05 level for time only. The questionnaire results point to an overwhelmingly positive response to end user searching.

(Supported by a grant from the Information Technology Research Institute Project, Memphis State University.)

OTHER INSTITUTIONS WITH BRS/AFTER DARK

The following institutions have experimented with or offered for patron use the BRS/After Dark service. The list of libraries involved with end user training is somewhat longer. See the "End User Bibliography" for more information.

Cornell University

Drexel University Library

Earlham College

George Mason University

Graham Laboratories (a pharmaceutical R & D corporation)

John Hopkins University - Biophysics Department

John Hopkins University - Welch Medical Library

Swedish Hospital Medical Center, Seattle

Texas A & M University Library

University of Ottawa - Morisset Library

University of Wisconsin-Stout in Menamonie

Whitney Information Services at GE Corporate R & D Center

BUDGET PROPOSAL

FULL-SCALE SERVICE

INSTALLATION

Description	Supplier	Cost
Telephone installation dedicated, 4 wire, voice grade, full-duplex, 1200 baud	South Central Bell	$ 112.00
Apple IIe Professional System 64 K, 2 disk drives with controlier (ProDOS), extended 80 column card, monitor	MSU Bookstore	1220.00
Imagewriter Printer (extended option) 120 cps printer, cable, super serial card	MSU bookstore	486.50
Printer Sound Trap	Opus 2	150.00
Apple Modem 1200 (extended option) direct connect modem, Bell 103/212A compatible, super serial card, cable	Apple Computer	399.00
Apple Access softward for auto-dial, auto-answer, transmittting and saving files	Apple Computer	52.50
EDP "Lime" surge suppressor, 6' cord, 6 outlets	Opus 2	67.12
Apple System Saver cooling fan	Opus 2	79.95
Computer work station variable height, 24"w x 30"d Demco #149-3528	Demco	159.95
Microcomputer cabinet locking security system, houses computer, 2 disk drives, monitor, modem Demco #149-3536	Demco	164.95

Description	Supplier	Cost
Printer Stand adjustable, printer can be secured INMAC #4867-7A1	INMAC	$ 159.00
Posture chair, armless Demco #149-0950	Demco	119.95
Diskette file 40 capacity, 5¼" diskettes, locking	INMAC	31.00
20 disks Verbatim, 10 per box ($25.00 per box), double sided, double density, 5¼" disks	Opus 2	50.00
	TOTAL INSTALLATION CHARGES	$3251.92

MONTHLY RECURRING CHARGES

Description	Supplier	Cost
Telephone charge	South Central Bell	$ 36.00
Printer paper 2500 sheets, 20 weight, clean tear, 1 box per month	MSU Bookstore	26.86
Ribbons 2 per month ($8.00 per ribbon)	OPUS 2	16.00
Minimum password fee 2 passwords ($12.00 per password)	BRS	24.00
	TOTAL MONTHLY CHARGES	$ 102.86

BUDGET PROPOSAL

MINIMUM CHARGES

INSTALLATION

No charges

MONTHLY RECURRING CHARGES

Description	Supplier	Cost
Thermal printer paper ½ box per month	Texas Instruments	$ 30.00
Minimum password fee 2 passwords ($12.00 per password)	BRS	24.00
	TOTAL MONTHLY CHARGES	$ 54.00